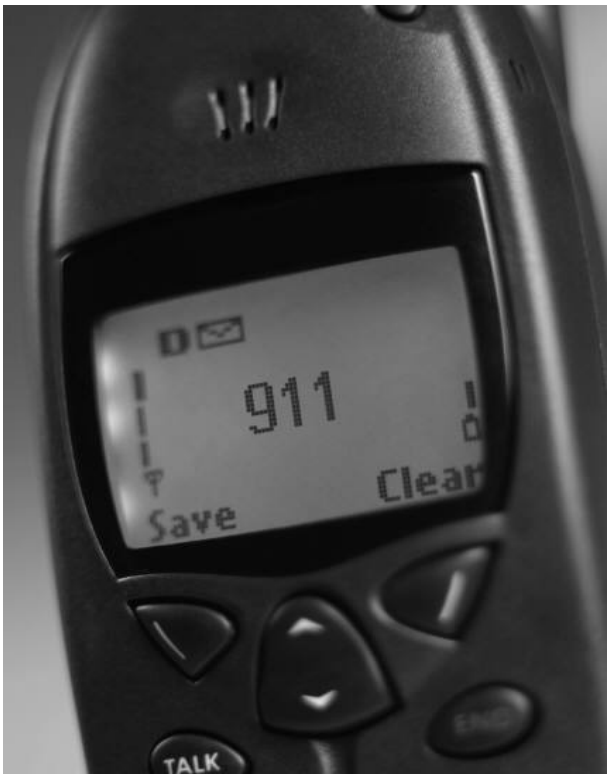


E911 Phase II Assessment Project Report

State of Kansas

October 2010

BACKGROUND

In the United States, Wireless Enhanced 911 (E911) is support for wireless phone users who dial 911, a standardized telephone number for requesting help in an emergency. Since the majority of cell phone users often are mobile, an enhancement was needed allowing the Public Safety Answering Point (PSAP) to know the caller's location when reporting an emergency.

With the increase in cell phone users in the last few decades, the number of 911 calls from cell phones also has increased. Unfortunately, because of lack of equipment and software, many emergency responders were unable to accurately locate the cell phone user and the individual(s) needing emergency assistance. When a 911 call is made from a landline phone, the PSAP receives the phone number from the landline as well as the address of the telephone from where the call originated. When a call to 911 is made from a cell phone, the PSAP might receive the phone number for the cell phone and the location of the tower transmitting the wireless call but not the precise location of where the cell phone caller is located.

The Wireless Enhanced 911 Act was created in 2004 to assist PSAPs in establishing Wireless Enhanced 911 (E911) services in Kansas. (K.S.A.12-5321 et seq.). Based on the law, a 50-cent fee was added per month per wireless subscriber account. Half of the fee and one percent of the retail price for any prepaid wireless phone service are used to fund the Wireless Enhanced 911 state grant program. The purpose of the E911 grant program is to provide funding for necessary and reasonable costs incurred by PSAPs for the following: 1) implementation of wireless enhanced 911 services; 2) purchase of equipment or upgrades and modification to equipment used solely to process the data elements of wireless enhanced 911 services; and 3) maintenance of license fees for such equipment and training of personnel to operate such equipment, including costs to train personnel to provide effective services to all users of the emergency telephone system who have communication disabilities.

In addition, the law authorized the Secretary of Administration to administer the provisions of the Wireless Enhanced 911 Act and the Secretary of Administration contracted with the Governor's Grants Program to provide the staffing and day-to-day management of the E911 state grant program. The Kansas Association of Counties (KAC) receives the other 25-cents and the League of Kansas Municipalities (LKM) disperses the money to local units of government based on the access line's zip-plus-four number.

As required by the Act, The Kansas Wireless Enhanced 911 Advisory Board (KWEAB) was created to oversee the Wireless Enhanced 911 Act and the E911 state grant program. The Wireless Enhanced 911 Act also required implementing wireless enhanced 911 by 2010 throughout the State of Kansas.

In 2006, the Legislature passed the VoIP (Voice over Internet Protocol) Act Enhanced 911 Act. (K.S.A. 12-5351 et seq) According to the Act, 50-cent fee is charged for each VoIP service user. The law requires the state to receive 25-cents of the fee to establish a grant program and the remaining 25-cents to be remitted to the local PSAPs by the KAC and the LKM which serve as the local collection point administrator.

In a series of orders since 1996, the Federal Communications Commission (FCC) took action in support of public safety regarding wireless 911 calls. Through its efforts a seamless coordinated approach for emergency services was adopted and the FCC created the wireless 911 rules. These rules are aimed at improving the reliability of wireless 911 services and identifying the location of wireless callers. The FCC's wireless 911 rules apply to all cellular licensees, broadband Personal Communications Service (PCS) licenses and certain Specialized Mobile Radio (SMR) licensees.

The FCC rules are as follows:

- **Basic 911** Rules - Require wireless carriers to **transmit all 911 calls to a Public Safety Answering Point** (PSAP), regardless of whether the caller subscribes to the carrier's service or not.

- **Phase I** Enhanced 911 (E911) Rules - Require wireless carriers, within six months of a valid request by a PSAP, to provide the PSAP with the **telephone number** of the originator of a wireless 911 call and the **location of the cell site** (tower) or base station transmitting the call.

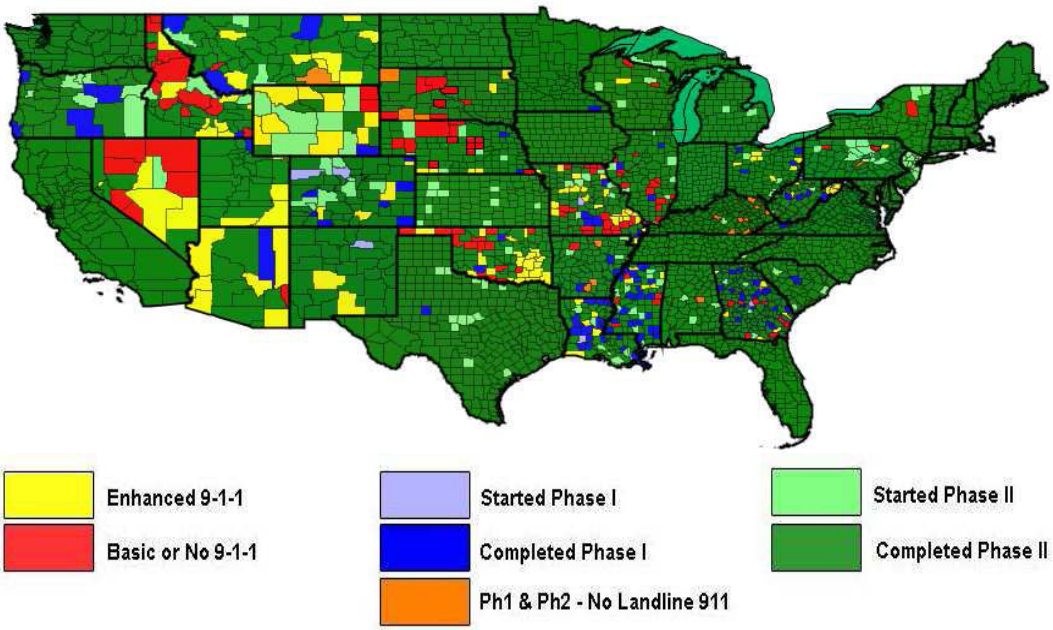
- **Phase II** E911 Rules - Require wireless carriers, within six months of a valid request by a PSAP, to begin providing more precise location information to PSAPs, specifically, the **latitude and longitude of the caller**. This information must meet FCC accuracy standards; generally, it must be accurate to within 50-300 meters (depending on the type of technology used).

- **Voice Over Internet Protocol** - On May 19, 2005, the FCC required that Internet service providers who interconnect VoIP calls with the public switched telephone network (PSTN) must provide E911 service for these callers.

- **Landline 911**, including both residential and business service, provides the PSAP callback number information as well as the address of the telephone where the call originates.

An assessment of the E911 Phase II status of all Public Safety Answering Points (PSAPs) in Kansas was authorized by the KWEAB to document the progress made by Enhanced Wireless services to the citizens Kansas and those passing through the state that need wireless 911 services. This in-depth study was accomplished in late 2009 and early 2010.

United States E9-1-1 Deployment



March 10, 2010 (from NENA website)

Note: the above map has not been updated to reflect current Kansas information but is current in the NENA database as reflected later in this document.

As directed by the KWEAB, staff conducted on-site visits to all PSAPs in Kansas receiving wireless telephone calls, to determine if Phase II compliant by July 1, 2010.

A standardized form was prepared for use in assessing the current status of each PSAP (Appendix A). This form requested information about the size of the PSAP as well as the area the PSAP was responsible for and defined the first responder agencies for which the PSAP dispatches for. It included information about the management and governance of the PSAP as well as current Phase I, Phase II and VoIP capabilities. Also included were questions about capabilities that may be useful for Next Generation 911 (NG911) planning. In addition, equipment purchased with funds from the State Wireless Enhanced 911 Grant Program were inventoried and examined for continuous serviceability.

Each PSAP was visited in person during the project period with one exception, the City of Leavenworth Police Department PSAP is co-located with the Leavenworth County Sheriff's Office PSAP in the Law Enforcement Center and the manager of the police PSAP was unavailable on the date visited. Therefore, a phone assessment was conducted since both PSAPs use the same E911 system which had already been assessed.

Gove County is consolidated with Logan County and Olathe Police Department is consolidated with the Johnson County Sheriff, therefore, they receive wireless fee distributions but have no PSAP taking 911 calls.

Please note that staff found that all of the PSAPs cooperated fully with the assessment and arranged for proper personnel to be available to assist with the assessment. Although many PSAP managers asked if the assessment results were positive, the assessor was careful to note to all PSAP managers that the assessment was not a performance evaluation of the E911 systems and that evaluation of any of the policies and/or procedures of the PSAP were outside the scope of the assessment. Technical problems, when found, with the E911 systems were noted in the assessments and discussed with the PSAP managers.

Assessments included PSAPs that have been eligible for Kansas E911 Wireless grants and those counties not eligible for grant funding (Wyandotte, Johnson, Shawnee, Douglas, and Sedgwick) were visited. A few PSAPs not taking wireless calls were visited to gather full information in those counties. Those landline-only PSAPs visited were Coffeyville and the Montgomery County Sheriff's Office in Montgomery County. Fort Leavenworth in Leavenworth County is unique in that it is a federal government military installation receiving wireless calls within its boundaries (with E911 coordination through the Mid-America Regional Council).

Johnson County is also unique in that all 911 calls go to the law enforcement PSAPs operating in the county (Overland Park Police Department, Leawood Police Department, Lenexa Police Department, Prairie Village Police Department, and Shawnee Police Department operate independently). The Johnson County Sheriff's Office recently took over dispatching responsibilities for the Olathe Police Department PSAP and is co-located with the Johnson County Emergency Communications Center (ECC). If fire or EMS first responders are needed, the call is transferred by the law enforcement PSAPs to the Johnson County ECC.

Several landline-only 911 PSAPs are operating in Kansas but were not a part of this

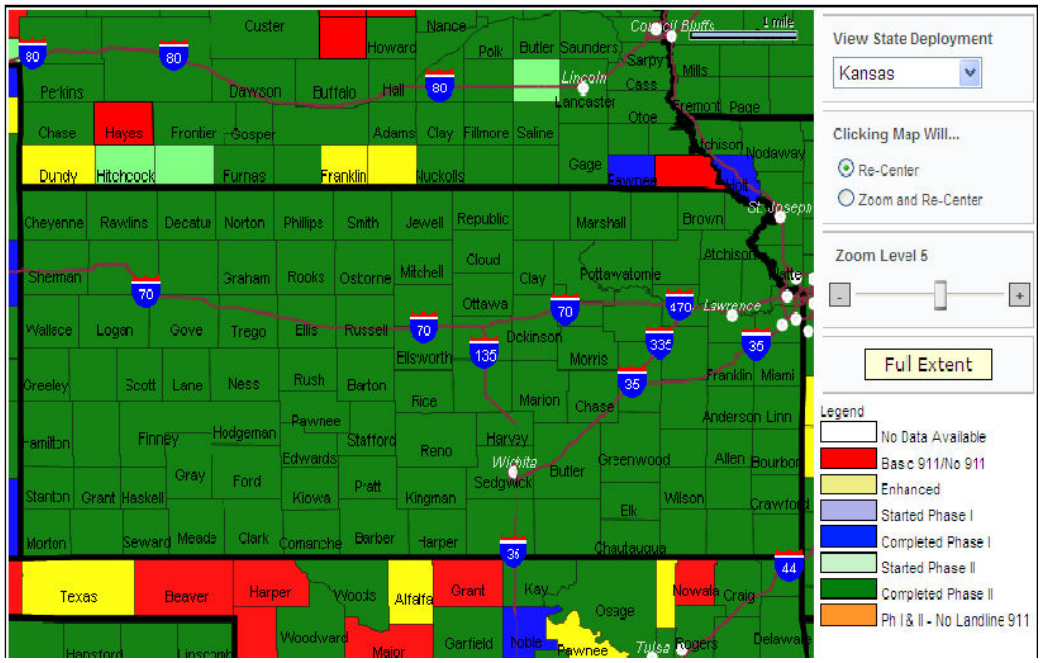
assessment as they have no E911 (wireless) capabilities. These PSAPs include: the Kansas University, Kansas State University, Fort Hays State University, Pittsburg State University, Fort Riley military installation, City of Wamego, City of Sabetha, City of Mulvane, City of Caney, City of Parsons, and others that may not be identified. In addition, several jurisdictions have no direct E911 trunk lines but those take 10 digit telephone transfers from E911 PSAPs and then conduct their own dispatching of first responders. The City of Galena, City of Baxter Springs, City of Neodesha, City of Paola and City of Osawatomie are examples.

The primary focus of the assessment was to verify Phase II capability of all PSAPs in Kansas. The assessment found that all **E911 PSAPs in Kansas are receiving E911 Phase II calls at this time.** This capability has been verified by staff at each of the PSAPs either through a test phone call or through review of a recent historical E911 call record showing that a Phase II call was received and the correct information for this class of service is being provided to the PSAP. Where possible, a photo was taken of the computer screen showing the WPH2 (Phase II) call for inclusion in the assessment report. The test was made using whatever cellular phone was available, usually one known to work in the area of the PSAP. All wireless carriers' (licensed in that area) capability to send Phase II class of service was **not** tested and beyond the scope of this assessment. Only two PSAPs were unable to receive a Phase II call while staff was present. Both were technical malfunctions that had previously been undetected. Subsequent to those on-site visits, both of these PSAPs have provided documentation to staff (via computer screen capture) that Phase II calls are being received.

The map from National Emergency Number Association (NENA) on the first page inaccurately depicts some counties in Kansas as having started, but not yet accomplishing Phase II E911. The more recent NENA map for Kansas is shown below and shows Kansas completely Phase II.

Phase II in Kansas

View Maps


View State Deployment
Kansas
Clicking Map Will...
Re-Center
Zoom and Re-Center
Zoom Level 5
Ful Extent
Legend
No Data Available
Basic 911/No 911
Enhanced
Started Phase I
Completed Phase I
Started Phase II
Completed Phase II
Ph I & II - No Landline 911
Custer
Howard
Nance
Polk
Butler
Saunders
Sarpy
Mills
Lincoln
Cass
Lancaster
Otoe
Fremont
Page
Perkins
Dawson
Buffalo
Hall
Chase
Hayes
Frontier
Gosper
Adams
Clay
Fillmore
Saline
Gage
Dundy
Hitchcock
Furnas
Franklin
Nuckolls
Cheyenne
Rawlins
Decatur
Norton
Phillips
Smith
Jewell
Republic
Marshall
Brown
Atchison
Nodaway
Sherman
Graham
Rooks
Osborne
Mitchell
Cloud
Clay
Pottawatomie
Wallace
Logan
Gove
Trego
Ellis
Russell
Ottawa
Lawrence
Ellsworth
Dickinson
Morris
Greeley
Scott
Lane
Ness
Rush
Barton
Rice
Marion
Chase
Franklin
Miami
Anderson
Linn
Hamilton
Finney
Hodgeman
Pawnee
Stafford
Reno
Harvey
Wichita
Sedgwick
Butler
Greenwood
Allen
Bourbon
Gray
Ford
Edwards
Kiowa
Pratt
Kingman
Elk
Wilson
Crawford
Stanton
Grant
Haskell
Morton
Seward
Meade
Clark
Comanche
Barber
Harper
Chautauqua
Texas
Beaver
Harper
Woods
Alfalfa
Grant
Kay
Osage
Nowata
Craig
Woodward
Major
Garfield
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Delaware
Hansford
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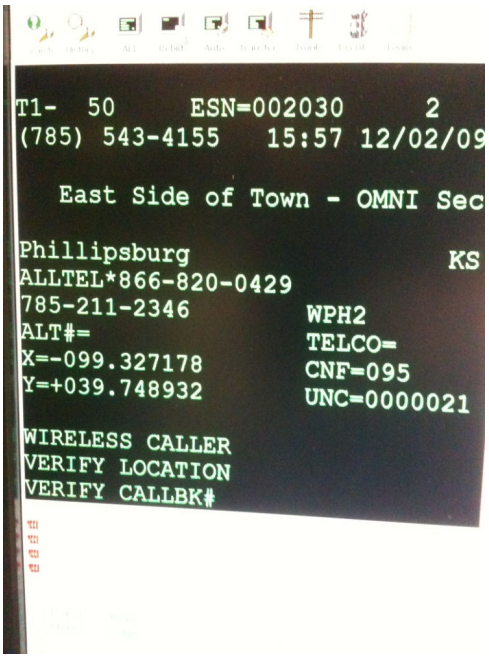
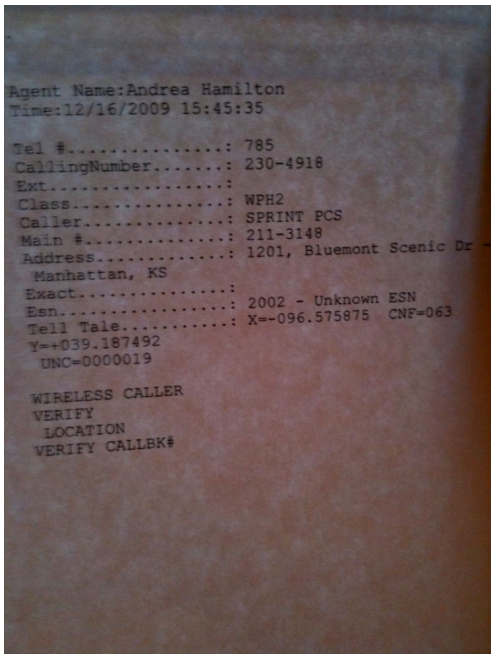
These are examples of documented Phase II calls as they are received by PSAPs:





A Phase I call will be designated with the abbreviation “WRLS” (or as “WPH1”) and a Phase II call will be designated with the abbreviation “WPH2” when received in the PSAP on the 911 phone system. This allows the dispatcher to immediately determine if the x,y location also provided is that of the cellular tower receiving the cell phone signal in a WRLS call or the location of the caller in a WPH2 call.

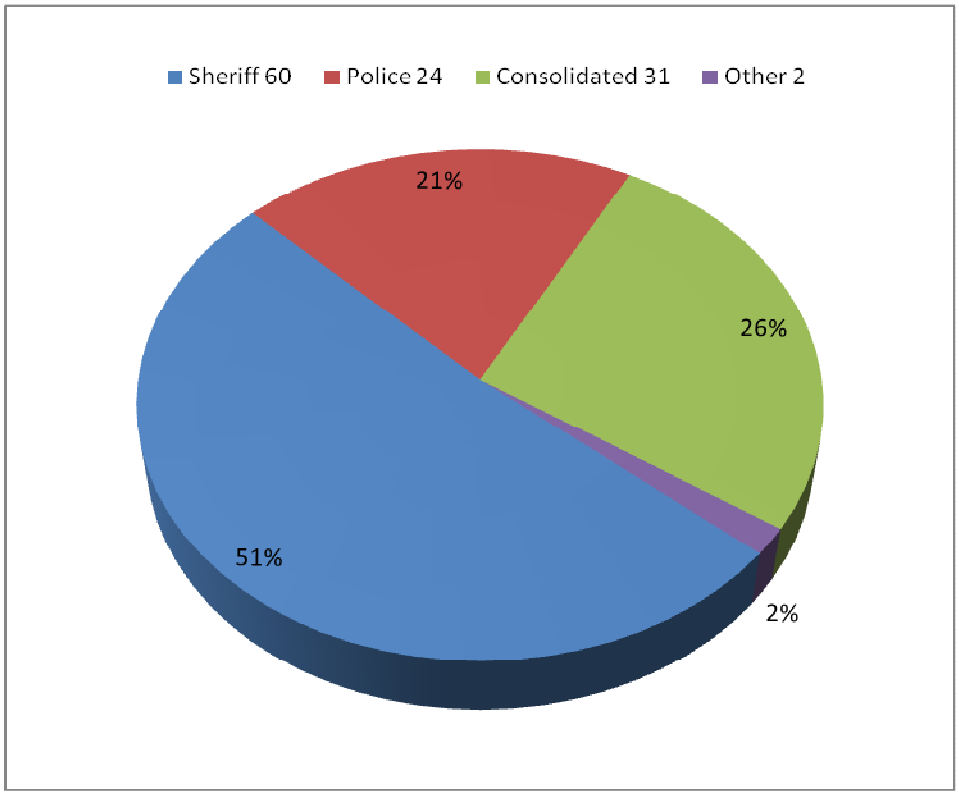
PSAP Information

Currently 117 E911 PSAPs operating in Kansas. This number may change as additional E911 PSAPs develop or PSAPs consolidate.

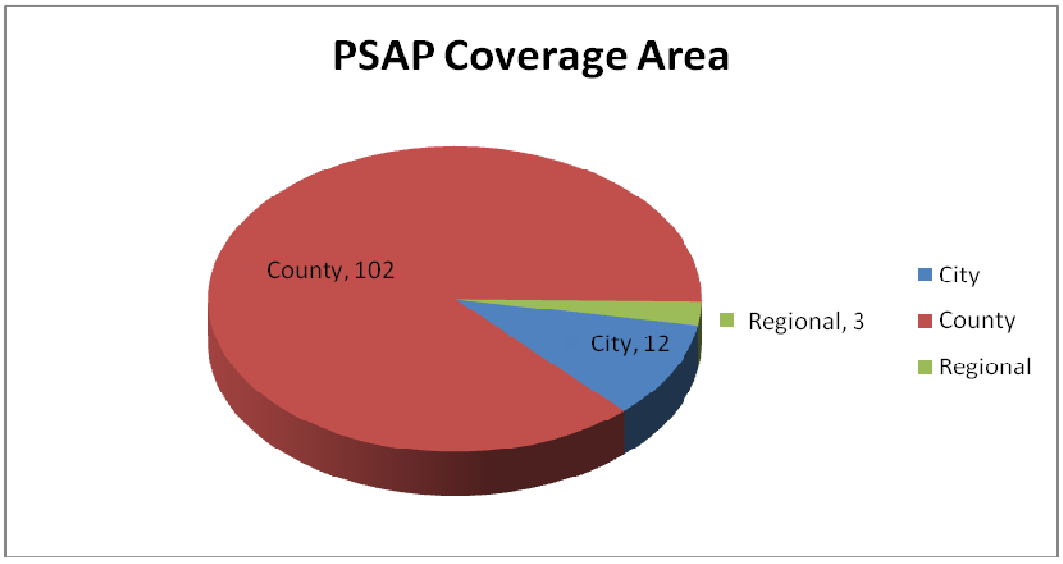
Of the 117 E911 PSAPs operating in Kansas, 60 are operated by a Sheriff's Office, 24 are operated by a Police Department, 31 are consolidated with governing responsibilities shared by both city and county entities, and one PSAP is operated by a county government entity that is a non-law enforcement department such as the Johnson County ECC and one is a federal military installation at Fort Leavenworth. It should be noted that Logan and Gove Counties are a consolidated PSAP with 911 services carried out by the Oakley Police Department in Logan County.

Most PSAPs are departments within the county sheriff's office. Riley County Police Department is the only known consolidated Sheriff and Police organization. Augusta Department of Public Safety is the only department managing a PSAP with public safety (police and fire) combined responsibilities. Most county-wide PSAPs are funded through the sheriff's budget as set by the county commission. Most police department PSAPs are funded through the police budget as set by the city council. The consolidated PSAPs have differing methods of funding operating expenses.

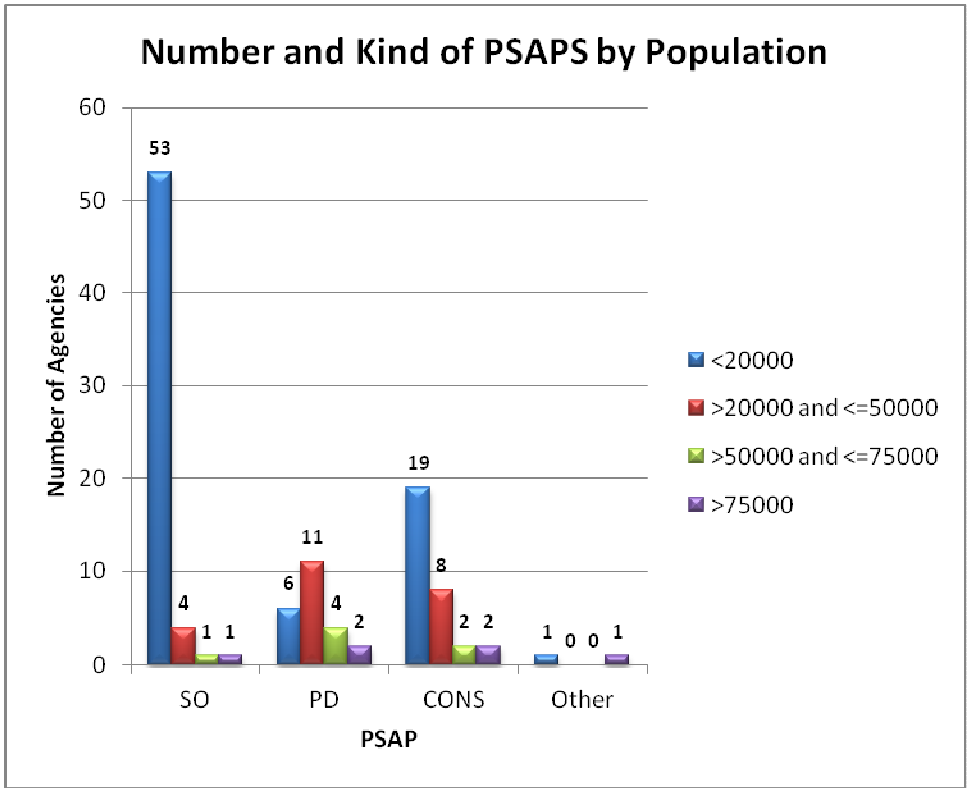
PSAP Management Agencies



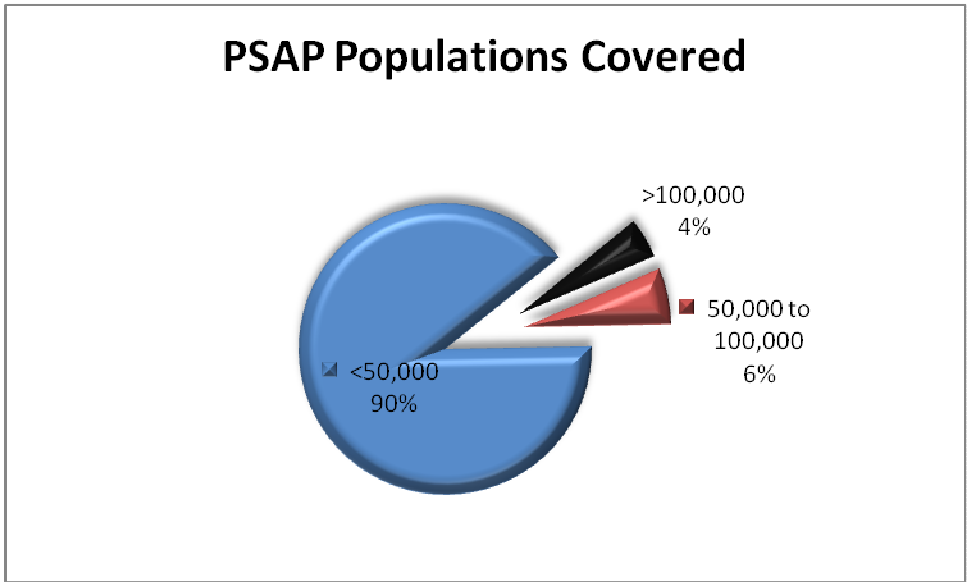
Except for the counties with larger populations and/or larger cities, most PSAPs handle E911 calls for the entire county.



Most PSAPs (102) handle E911 calls for areas with populations of less than 50,000. Five PSAPs handle an area with a population more than 100,000. Eight PSAPs handle a population between 50,000 and 100,000.

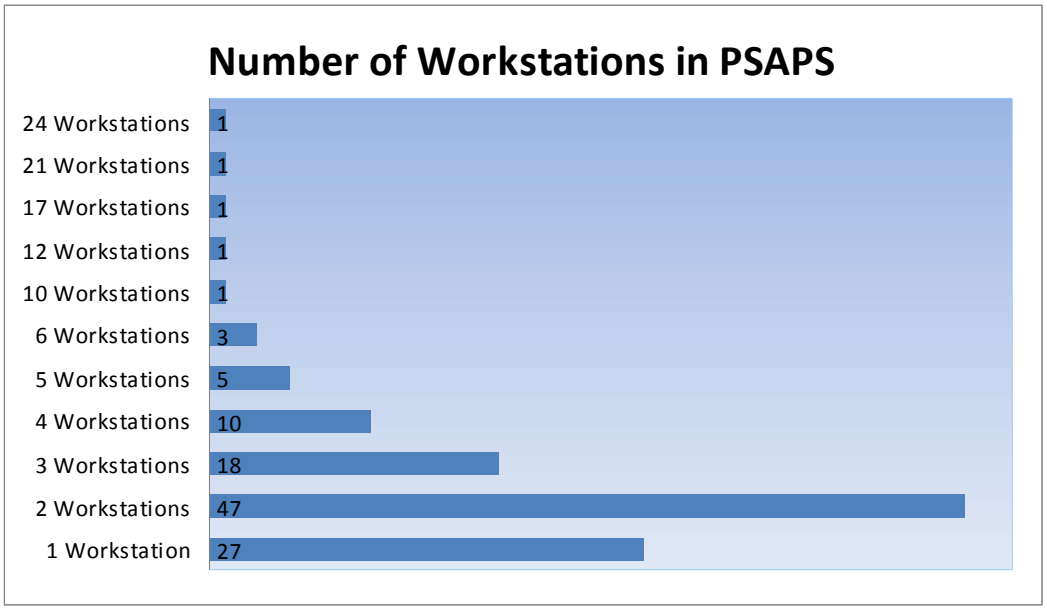


Gove County and Olathe Police Department are not included in the above chart since reflective of Logan County PSAP and Johnson County PSAP respectively.



Gove County and Olathe Police Department are not included in the above chart since reflective of Logan County PSAP and Johnson County PSAP respectively.

The majority of PSAPs contain one or two E911 workstations. The maximum number of workstations in one PSAP was in Sedgwick County, with 24 workstations which receive the largest number of 911 calls in the state.



Gove County and Olathe Police Department are not included in the above chart since reflective of Logan County PSAP and Johnson County PSAP respectively.

Note: Some assessment reports show 1.5 or 2.5 reported workstations which is how the PSAP counts its workstations with E911 phones and radios. (1.5 workstations = one radio/two E911 phone consoles)

Dispatchers at most of the one or two position communication centers have many collateral duties, including front office reception, jail door control, support for jail staff, monitoring prisoners, collection of fines/bonds, handling administrative calls for several other departments, and other duties. The loss of the personnel to conduct these tasks when moving to a consolidated PSAP seems to be one of major hurdles to some consolidation efforts. It is thought by opponents to consolidation that transferring these personnel to another location would leave open an unfunded full-time employee position, critical to the operation of the front office.

Information concerning authorized staff versus current staff was requested and most PSAPs were found to be fully staffed. Very few PSAPs reported having trouble hiring to remain fully staffed.

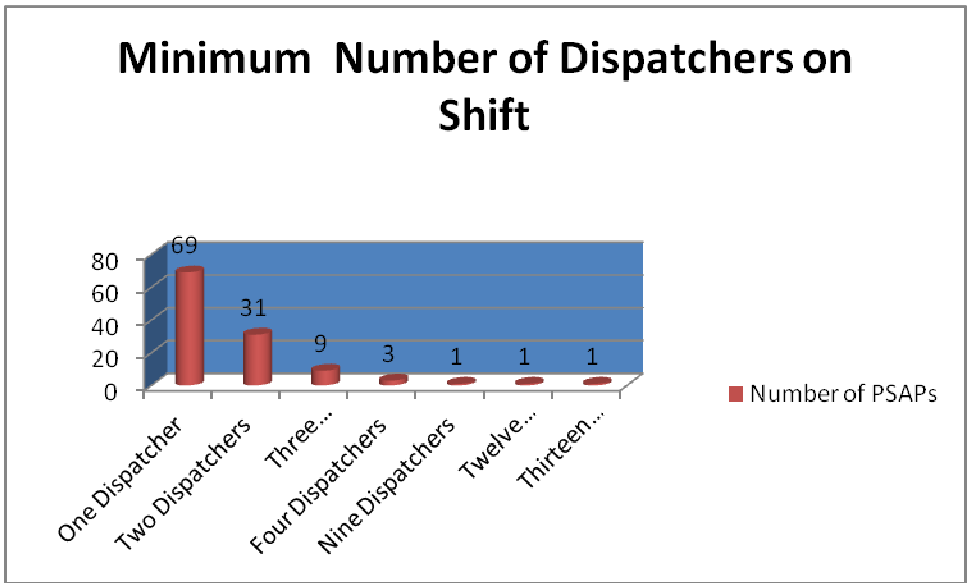
Twelve percent of the PSAPs assessed were unable to provide a total number of 911 calls to the PSAP and could not provide a percentage of wireless calls. Both the on-site assessments as well as grant application records were checked for this information. The lowest number of 911 calls in a year was reported to be 173 calls in Stanton County and the highest reported was 463,520 911 calls in a year reported by Sedgwick County.

The highest percentage of E911 wireless calls was 92 percent by the Labette County Emergency Communications Center. Of those PSAPs reporting their percentage of wireless E911 calls, the average overall is 62.13 percent.

Although this was not reviewed in the assessment, it is believed that all PSAPs in Kansas log their E911 calls in some manner. Most PSAPs planned on including reporting software in their E911 phone system upgrade path to be able to accurately record the number of calls received. As part of the assessment, equipment purchased on previous grants was checked to ascertain if that equipment was still in use. With a few exceptions where equipment was replaced or upgraded, all of the equipment is still in use. In particular, those PSAPs without Computer Aided Dispatch (CAD) software were asked if they audio recorded their E911 calls for a permanent record. All PSAPs reported they record these calls as a matter of policy and procedure.

Only two PSAPs were found to be utilizing consolidated 911 wireless and landline phone trunk lines. The Association of Public-Safety Communications Officials (APCO) recommends that separate wireless and landline trunks be utilized. Having separate wireless and landline trunks prevents the queues from multiple calls (such as a rollover accident on a major highway) on the wireless, or landline trunks from affecting the other trunk line system. This helps the PSAP handle all 911 calls in a competent and efficient manner. Most of the PSAPs reported adjustments to their landline/wireless trunk numbers as a response to the increased number of cell phones in use. Most are keeping their number of wireless trunks (compared to total trunks) at a similar percentage as their wireless calls received.

The majority of PSAPs in Kansas (59 percent) are staffed with one dispatcher per shift. PSAPs usually have additional E911 phone workstations available to assist the on-duty dispatcher(s) during periods of high call volume, specifically during critical or weather incidents.



Gove County and Olathe Police Department are not included in the above chart since reflective of Logan County PSAP and Johnson County PSAP respectively.

E911 Phone and connected Systems

Several software and system vendors supply E911 phone systems to the PSAPs. Those software systems are: various versions of Plant/CML software, Nine One One, Inc., TCI InVision, Positron, Maars, and Zetron software.

Less than 10 PSAP managers report support problems with their Customer Premise Equipment (CPE) supplier. Many noted conflicts between the CPE supplier, and the Local Exchange Carrier (LEC), the 911 trunk line supplier which caused delays in reaching a resolution to the problem. A majority of PSAP managers reported being very satisfied with a one-call notification to a resolution center which coordinated a response to the problem and reported back the results.

Most PSAP managers reported no problems with support from their 911 System (CPE) provider.

The PSAPs with TCI InVision as their CPE reported several support problems. TCI InVision apparently was sold resulting in loss of a support services from the company. This problem has been noted by the KWEAB and grants have been awarded to several PSAPs, as a priority, to replace these systems with systems from other more stable companies. The KWEAB also requested PSAPs to plan for extending maintenance contracts for five to seven years, when possible, to mitigate a similar problem in the

future. Two PSAPs are not planning for the immediate replacement of their TCI InVision systems and both indicated they were waiting for NG911 standards to be set and integrated into CPE systems before replacing their systems.

Many PSAP managers operating the latest software available from vendors were under the impression that their 911 phone system software is Next Generation 911 (NG911) compatible. This misunderstanding is because of vendors' current marketing strategy claims. As the final standards are not yet set for NG911 it is not accurate for any vendor to claim NG911 compatibility at this time. It is an issue of education for these PSAP managers that their software is NG911 "capable" (rather than compatible) and will certainly require technical support and, potentially, more hardware and software to become operational in a NG911 environment.

All PSAPS reported they are receiving the tower location and sector on all calls; both Phase I and Phase II class of service calls.

Less than five PSAPS were able to locate any documentation from their Local Exchange Carrier officially notifying them they were Phase II capable. It would appear that this may stem from personnel changes (lost documents) and many notifications being made by email or in-person meetings with the LEC during the course of testing and live transition. With the exception of a few PSAP managers, most reported they were satisfied with the testing procedures and open lines of communications with their LEC Carriers as they moved into Phase II capability. Most knew the date they began taking Phase II class of service calls.

PSAP managers reported only a few small wireless service providers having problems with providing Phase II calls, usually due to continued testing, lack of towers in certain areas, and the building and testing of new towers in a county. PSAP managers reported the impression that even these service providers were trying to resolve the problems and communicating their progress back to the PSAP.

Computer Aided Dispatch (CAD) is a method of dispatching emergency services assisted by a computer. It can be used to send messages to the dispatcher via a mobile data terminal and/or used to store and retrieve data. The central idea is that persons in a dispatch center are able to easily view and understand the status of all units being dispatched. CAD provides displays and tools so that the dispatcher has an opportunity to handle calls for service as efficiently as possible. Currently 38 percent of all PSAPs do not currently use CAD. The remainder use a variety of CAD software and most, if not all, have an interface to move the caller and call-back number information into the CAD system. Most also move the caller location information to the CAD system. All PSAPs not having CAD are using some type of handwritten logs.

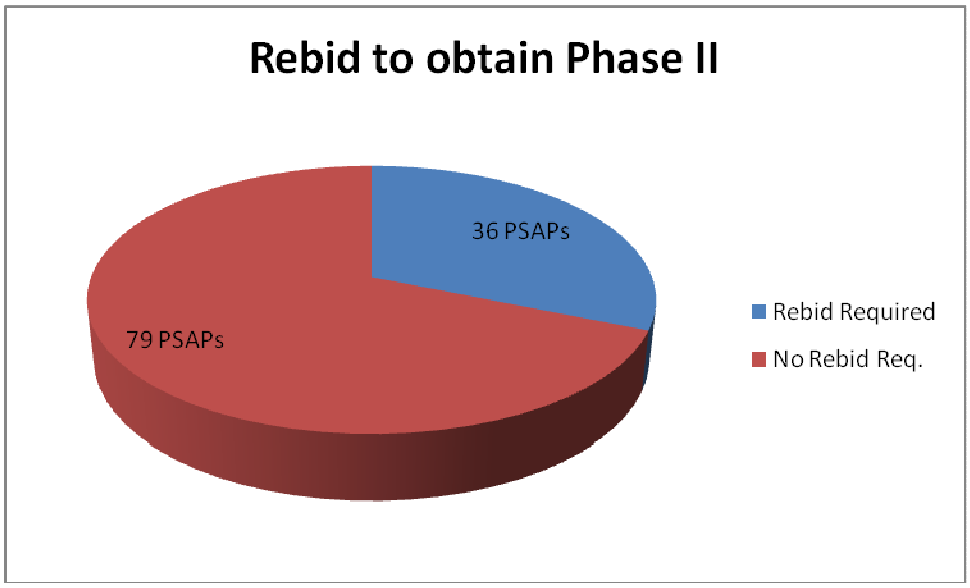
It is believed that all PSAPs are utilizing audio voice loggers for recording E911 calls although that was not a specific question on the assessment form. The retention of these recordings differs from agency to agency but it seems that most are retained in perpetuity.

PSAPs assessed having CAD systems usually either have a E911 system with mapping or use a CAD system with mapping by passing the caller location information to the CAD and CAD mapping software. Very few PSAPs utilize mapping on both the E911 system and the CAD system due to the map maintenance required to keep both maps synchronized. PSAPs with CAD mapping indicated they added CAD mapping because it allowed for use of a better map and/or allowed the use of ortho-photography (satellite or overhead photos). PSAPs use a variety of map types ranging from very simple road type maps to extremely detailed overhead photography. Most used simple overhead (satellite or flyover type) maps and apparently many different formats. A few used a mapping product called Pictometry which allows for oblique views of a location from several compass directions, observably a significantly different means of utilizing mapping for public safety.

Deployment of computers in first responder vehicles was concentrated mostly in the largest cities. Most of these deployments included an interface with the CAD system and most of these moved the caller location from the E911 system out to the first responder vehicle for mapping/routing purposes. Most PSAPs indicated they hoped for some type of mobile computer deployment in the future but most reported lack of funding for a project of this type.

Almost all E911 systems and CAD systems were operating in a Microsoft Windows environment.

As mentioned earlier, all E911 PSAPS in Kansas are receiving both Phase I and Phase II class of service 911 calls. All information sent within those classes of service is being received by the PSAPs. The Phase II calls are designated as WPH2 calls by the E911 phone systems, denoting that the caller location (latitude and longitude) is included in the information. As part of the assessment, the assessor observed the PSAPs receiving a test 911 call. As an alternative, a recent historical logged call was sometimes used to document that WPH2 calls and information were being received correctly. The historical review was most often used due to heavy or emergency traffic on the phones or communications center radios and to avoid interfering with the ongoing operations of the PSAP at that time.



Gove County and Olathe Police Department are not included in the above chart since reflective of Logan County PSAP and Johnson County PSAP respectively.

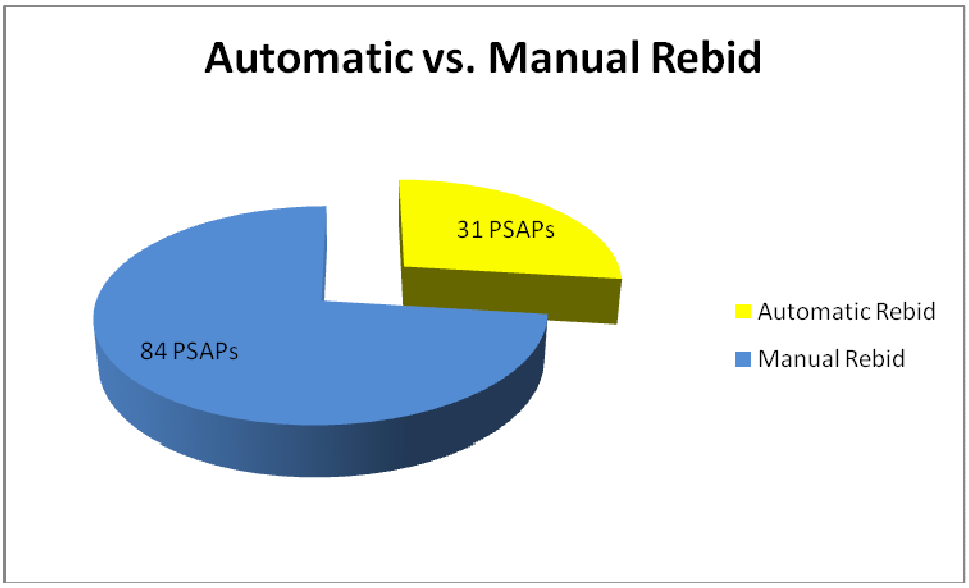
PSAPs will either receive the Phase II (WPH2) information immediately upon answering the 911 call or the call will come in as a Phase I call and must be rebid to receive the Phase II call information, if available. Of all the PSAPs, 68 percent received the Phase II call information immediately upon answering the call.

Many of the PSAP managers believed they always had to rebid the call to get the Phase II information. For testing purposes only, the assessor would request to wait for three or four rings before answering the phone. Dispatchers are proud of the fact that they "always" answer the phone on the first or second ring." By waiting for the three or four rings, it was found that many PSAP received the Phase II information immediately upon answer. It is inherent in the current E911 systems that the caller location takes longer to become available to the PSAPs than the Phase I information.

PSAP managers were advised that waiting for additional rings was not a recommendation of the assessor but, in fact, recommended only for testing purposes. Some PSAPs reported that they believe the 911 callers hear a ring on their end prior to the PSAP receiving the call. Waiting more than one or two rings may give the caller more rings than they are willing to wait for, resulting in repeated calls.

Many PSAPs have the availability through their E911 phone system software to set an automatic rebid. After answering the call, and during the phone conversation, the software will automatically rebid the call to obtain Phase II information and/or to achieve

a better caller location. Seventy-three percent of all PSAPS require the Dispatcher to manually rebid to obtain Phase II information if the call does not initially come in Phase II (WPH2).



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Four PSAPs reported they deactivated their automatic rebid function because during the rebid some interference or complete interruption of the call occurred. However, it returned to normal after the rebid was complete. The automatic rebid occurred while the dispatcher was trying to receive the caller's critical information. To avoid this problem, the manual rebid was set to allow the dispatcher to choose an appropriate place or pause during the conversation to initiate the rebid.

Recognizing this as an issue, some research was conducted. It was found that this is a known issue inherent in many E911 systems and known as "audio blanking." Mid-America Regional Council phone experts indicated it may be caused by a computer chip used in a series of phones. Phone company representatives indicated it was a negative characteristic and technology limitation of most current E911 systems and could not be adjusted. At this time, the exact reason for audio blanking and what set of circumstances need to be present to cause this interference is unknown. As a result of recognizing this issue, all PSAPs having an automatic rebid were notified of the

potential problem so testing could be accomplished to determine if their PSAP was affected.

Mapping

Almost all of the 911 test calls made mapped correctly on either the E911 phone system mapping software or the CAD mapping software. Most dispatchers interviewed informally indicated that "almost all" of the 911 wireless calls they receive map correctly for their use in dispatching first responders. Errors in location of the caller were very obvious during the actual phone call or the emergency response to the call and were reported as occurring infrequently, if at all. Location errors, when they occur, are readily apparent.

Less than five PSAPs have **no** mapping capability with their E911 phone system or CAD, which makes the caller's Phase II information and location useless to the dispatcher. Although these PSAPs could utilize the latitude and longitude of the caller by transferring the location to a website such as MapQuest, this was cumbersome at best. As a result, the PSAPs were unsure whether they were receiving Phase II calls. All were receiving Phase II information. All of these PSAPs are believed to have received grant funds from the 2010 Wireless Enhanced 911 Grant Program to add mapping capability to their E911 systems which will make the Phase II information they are already receiving becoming useful as a tool for the dispatchers and first responders.

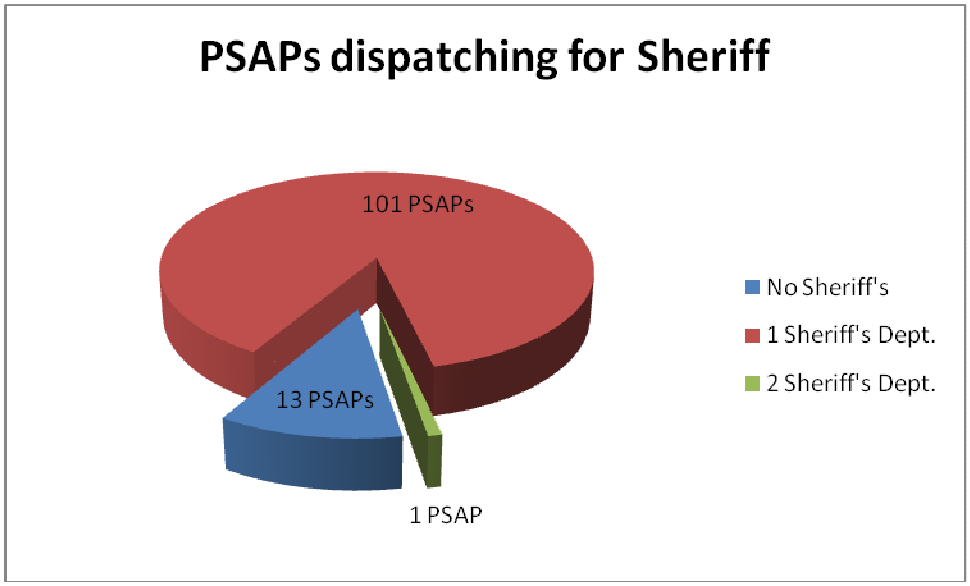
Although there were a few reports of mapping problems by PSAP managers, most seemed to involve formatting problems and incompatibility between systems. The PSAPs with these issues were planning on further software translations to solve the problem or were planning on replacing the maps with a format useful to current E911 and CAD systems. Some were waiting to upgrade to E911 systems and/or CAD systems are waiting to use more recent and compatible maps.

Performance Evaluation

The Mid-America Regional Council (MARC) coordinates E911 for several counties in eastern Kansas as well as several counties in Missouri. MARC conducts testing as set out in APCO published guidelines for all PSAPs they coordinate for. The PSAPs in Kansas under the MARC's coordination were the only PSAPs accomplishing formal and regular performance testing of their E911 phone systems as well as analyzing the information provided by wireless carriers for accuracy. Thirty-five PSAPs reported they conduct some type of performance testing of the E911 system, informal testing except for the MARC region. Eighty PSAPs reported no performance testing except that done by the local exchange carrier or wireless carriers.

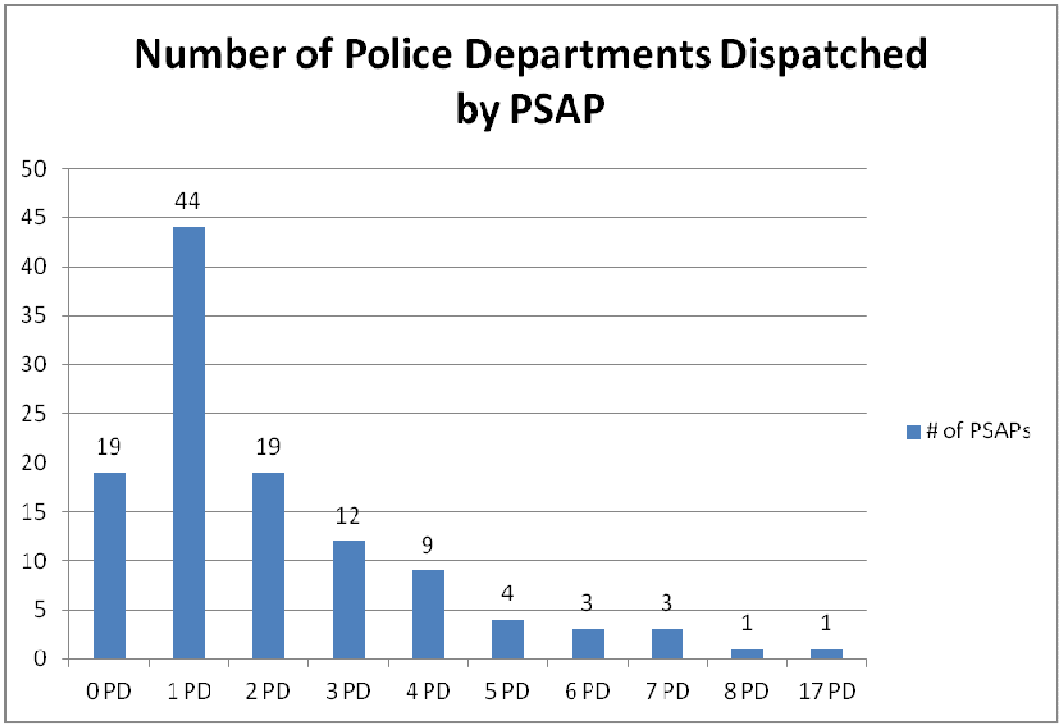
Agency Responsibility for PSAPs

Most of the Kansas PSAPs take E911 calls and handle dispatching responsibilities for county wide law enforcement which may include several cities within the county. Obviously there are exceptions, including several Police Departments handling these responsibilities for their jurisdictions. Most PSAPs dispatch for county- wide Fire and EMS services. Most counties have an abundance of township or district rural volunteer fire departments with dispatching policies and procedures particular to their organization.



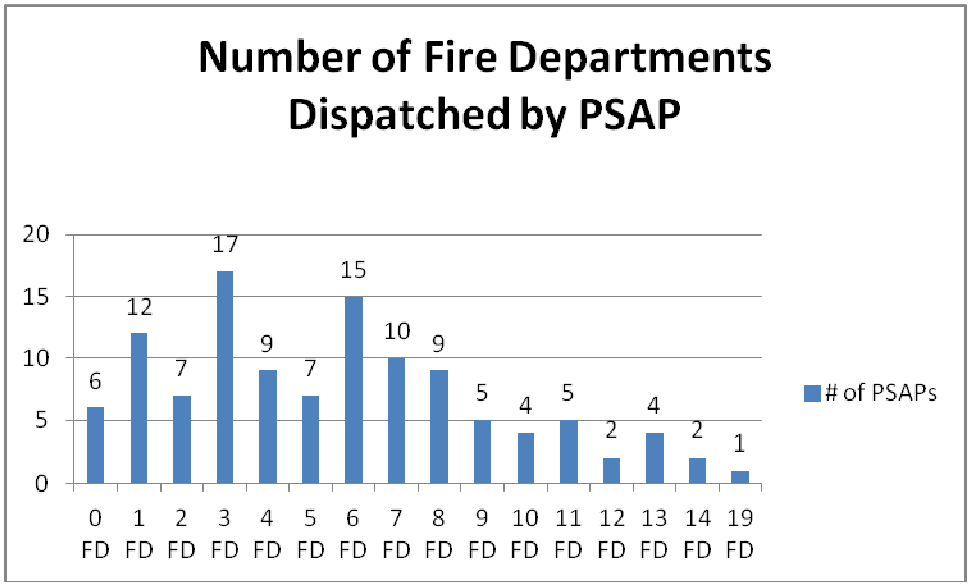
Gove County and Olathe Police Department are not included in the above chart since reflective of Logan County PSAP and Johnson County PSAP respectively

Forty-four PSAPs dispatch one Police Department. One PSAP dispatches for 17 Police Departments.



Gove County and Olathe Police Department are not included in the above chart since reflective of Logan County PSAP and Johnson County PSAP respectively.

Seventeen PSAPs dispatch for three Fire Departments. One PSAP dispatches for 19 Fire Departments.



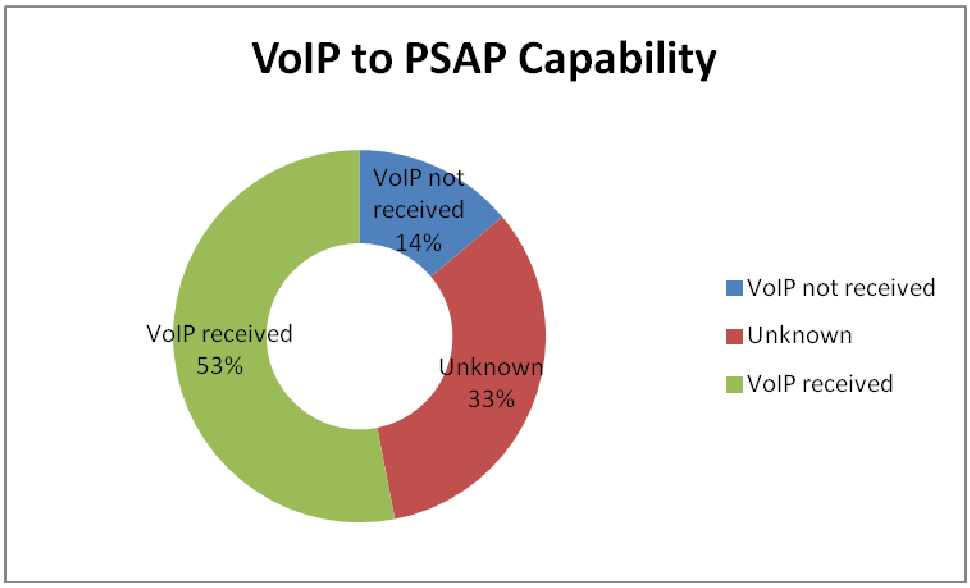
Gove County and Olathe Police Department are not included in the above chart since reflective of Logan County PSAP and Johnson County PSAP respectively.

VoIP (Voice over Internet Protocol)

According to reports from PSAP's, they are receiving few VoIP calls. Sixteen PSAPs reported not receiving any VoIP calls. Thirty-eight indicated it was unknown whether the PSAP had received any VoIP calls. Sixty-one indicated that they were receiving VoIP calls, which made up less than one percent of their calls. These PSAPs reported receiving less than one percent VoIP calls. There were no reports of any problems with receiving VoIP calls and there were no reports of any support problems from any VoIP provider.

There were a few reports from PSAP managers concerning the Vonage VoIP service. Vonage reinforces with their subscribers that if they move their computer to another location, they need to notify Vonage of the location change. Several subscribers have already failed to do so, which causes 911 emergency calls to be routed to the Kansas location of where they last notified Vonage. These wrongly routed calls were reported to be problematic for dispatchers who are accustomed to handling transfers to nearby cities and counties. These wrongly routed calls often are from out of state making it difficult for the dispatcher to transfer to the appropriate PSAP. Upon finding the caller needs help in another state, the dispatcher does not have information readily available a

means to locate the phone number of the out-of-state PSAP to which the call needs to be transferred.



Gove County and Olathe Police Department are not included in the above chart since reflective of Logan County PSAP and Johnson County PSAP respectively.

The E911 assessor believes that the VoIP call volume is so low at this time that many PSAPs may have received VoIP calls and not realized it, which could account for the 32 percent unknown rate. Most PSAP managers, when asked the number of VoIP calls received, indicated they only noticed that some VoIP calls were received and logged when producing a management report such as a yearly call volume report. Most VoIP calls were reported to be coming in to the PSAPs with correct information and similar to residence and business class of service calls.

During almost all discussions that took place with PSAP managers concerning call types, the problem of Non-Service Initialized (NSI) phones being used to call 911 came up. These are phones with no paid wireless plan and often an old cell phone with no service but given to children to play with or to victims of crime to access 911 when needed. The phone can only make an outgoing call to 911. An invalid call back number is sent to the PSAP (usually with a “911” prefix) and no Phase II caller location information is received. Many of these calls are reported to be repetitive calls from the same phone. There are several programs apparently working in the state to hand out these phones to elderly shut-ins or people in domestic abuse situations for use in calling 911 in an emergency. Several reported successes in rural areas being able to track down these calls using only the tower and sector information but these successes were infrequent.

Network Availability

All PSAPs in Kansas are connected to the Kansas Criminal Justice Information System (KCJIS) and through KCJIS they are connected to the National Crime Information Center (NCIC). Although not part of this assessment, it is believed that most, if not all, are utilizing the State of Kansas Division of Information System and Communications (DISC) network for KCJIS data connectivity. Most, if not all, of these KCJIS computers are on a network separate from other PSAP networks to comply with KCJIS security requirements.

Almost all PSAPs have a Ethernet network available and used for other technology. Almost all PSAPs reporting they have such a network indicated that it is a public safety only network and firewalled off from other non-law enforcement departments within their organization.

Disaster Planning

The assessment requested the PSAPs emergency plans in case of a disaster making the current location unusable. The best regional plan seems to be the backup center in Yoder, KS operated by the Hutchinson Community College and Area Vocational School for use by 11 surrounding counties in case of emergency. This center was funded through grants from the Kansas Technology Enterprise Corporation (KTEC) and through the Kansas Department of Education's innovative technologies grant program. It is normally used for training Emergency Dispatchers in their associate's degree program.

Two drawbacks to this plan were pointed out to the assessor. First, the center has no radio capability and would probably be too far away from most nearby counties to use portable radios. The center also has to be staffed by trained 911 call-takers. At the time of a disaster, the county involved will have to locally staff some emergency location that has phone lines to enable taking 911 transfer calls or relayed 911 calls for dispatch using portable radios to contact first responders. Although assistance may be received from other PSAPs for use in the backup center, at least one Sheriff preferred the use of a nearby, existing, PSAP to receive the 911 calls. The PSAPs often have radio communications with nearby counties which would be useful in case of disaster.

At the other end of the planning scale, one PSAP manager reported its plan was to route all 911 calls to a personal cell phone in case of disaster. The assessor pointed out that the local cell phone system would probably not be working in case of disaster due to damage or overload of calls by people checking on loved ones. Almost all PSAPs planned to transfer 911 calls to a nearby PSAP. The local dispatch center would be moved to a location found to have working telephone lines and portable radios would be used for dispatching. Many had plans to use existing, intact, government buildings to provide shelter and telephones. Several had mobile command posts to

handle communications needs in a disaster.

Although not a part of this assessment, some discussions took place concerning PSAP and law enforcement enrollment in three programs available through the Department of Homeland Security National Communications system. PSAP managers were generally unaware of these programs which are:

Government Emergency Telephone Service (GETS) – this program provides a free calling card for use in obtaining emergency access and priority processing in the local and long distance segments of the Public Switched Telephone Network (PSTN). This is available to law enforcement and others.

http://gets.ncs.gov/index.html

Wireless Priority Service (WPS) – this program is a priority calling capability that greatly increases the probability of call completion during a national security and emergency preparedness event while using its cellular phone. This program is also available to law enforcement and others. There is a monthly charge for each cell phone enrolled.

http://wps.ncs.gov/program_info.html

Telecommunications Service Priority (TSP) is a program authorizing emergency preparedness organizations to receive priority treatment for vital voice and data circuits or other telecommunications services. As a result of hurricanes, floods, earthquakes, and other natural or man-made disasters, telecommunications service vendors frequently experience a surge in requests for new services and requirements to restore existing services. The TSP Program provides service vendors a Federal Communications Commission (FCC) mandate to prioritize requests by identifying those services critical to response to the disaster. TSP assignment ensures that it will receive priority attention by the service vendor before any non-TSP service and must be requested prior to the disaster.

http://tsp.ncs.gov/

It is significant to note that a vast majority of PSAP managers, when asked if there was an emergency plan in place, responded that they thought the County Emergency Manager might have a plan but had never seen or been consulted about an emergency plan. Some Emergency Managers were involved with the management of the PSAPs. A majority of PSAPs reported the Emergency Manager had no significant involvement with the PSAP.

Wireless Service Providers

As part of the assessment, PSAP managers were asked to list wireless service providers in their area. The assessor specifically asked if any particular wireless service provider was failing to provide adequate service or support for their services to the PSAP. Managers also were asked if any wireless service provider could be identified as providing erroneous call-back or caller-location information for their cellular phones. No significant problem with any wireless provider was identified, except for minor local problems with a few providers.

Principal Issues affecting PSAP in Kansas

- Mapping
    - Mapping capabilities to show caller locations do not exist in all PSAP E911 phones systems in Kansas.
    - Resources are limited to correct mapping errors and keep maps current.
    - PSAPs normally only have their county map available but often receive calls from, or dispatch first responders to locations in nearby counties for which they may not have a map.
    - Statewide Geographic Information Systems (GIS) standards, especially those that would alleviate format incompatibilities, would allow sharing of mapping between counties.
    - A state repository for mapping would be useful for all PSAPs as well as other state and local agencies.

- Training
    - Training is generally unavailable or very limited for those working in the smaller PSAPs, particularly in western rural Kansas.
    - Training opportunities are hampered by travel requirements.

- Training opportunities are limited due to small staff and availability of substitute dispatchers.
- Funding is limited for training.

- Performance testing of E911 systems
  - Resources are unavailable to follow Association of Public-Safety Communications Officials (APCO) guidelines for performance testing.
  - Availability of funding for purchase and monthly charges for testing phones is not present.
  - The MARC region contains the only PSAPs that are conducting formal testing of E911 phone systems and the information provided by wireless carriers.
  - Phase II information may not be immediately available to the dispatcher upon answering a 911 call. The dispatcher may have to initiate a rebid to get the caller location information. This problem is due to current telephone technology limitations and may be an issue of concern when identifying requirements of Next Generation 911 systems.

- Current 911 system problems.
  - Audio Blanking
    - An E911 call rebid can cause interference or total interruption of the voice conversation taking place.
    - Automatic rebid functions are being turned off as the automatic rebid may take place during a critical portion of the voice conversation.
    - Further research is needed to determine the exact cause of the problem and to identify options available to mitigate it.
  - Non-Service Initialized phones repeatedly calling 911.
    - Usually children playing on an old cell phone.
  - Phase II information not being available to the dispatcher immediately upon answering a 911 call.
    - Apparently this occurs due to current telephone and E911 technology limitations.
  - Neither the network nor handset (triangulation or GPS) technology used to locate the caller works every time.

- The general public and public safety responders could use training that cellular phones using handset (GPS) technology will only work if the GPS can see the sky and obtain a location fix on the caller.
- The location of the caller may not work from inside a building.
- Cell phone users with AT&T and T-Mobile should also be made aware that using their network technology phones may not give an accurate caller location if the call is made outside of an area having enough network capable cell towers to make the triangulation method workable.

- Disaster Planning
  - Most PSAPs seem to have disaster plans that are independent of county-wide disaster planning.
  - Most PSAPs have no plan for business continuity, crucial to accurate record-keeping necessary to comply with federal disaster relief requirements.
  - Most PSAPs plan to divert 911 calls to a nearby PSAP, locate operating telephones nearby, use portable radios for dispatching, however their plans end there.

- Replacement of TCI E911 phone systems due to ongoing lack of support.
  - All but two PSAPs have received Kansas Wireless Enhanced 911 Grant funds to replace these systems and installation is ongoing through 2010.
  - The two PSAPs remaining are waiting for NG911 standards to be set before replacing their TCI systems. No funding plan is yet in place for these replacements.

- Consolidation of PSAPs
  - Consolidation of existing PSAPs is a sensitive issue on many levels.
  - Opponents to consolidation claim loss of control, loss of personnel to perform collateral duties of dispatchers necessary to business operations, and loss of local knowledge as reasons to avoid consolidation.
  - Developing a specific plan, while considering input from all stakeholders, and including specific cost savings and personnel allocation, may be more useful to a successful consolidation effort than a non-specific plan which seems to threaten the stakeholders.
    - The most vocal opponents during consolidation discussions seemed to be the dispatchers and PSAP managers. They seemed

leery of any consolidation due to perceived drastic change in management, change in policies, change in pay structure, and change in work environment. Most do admit they can see the efficiencies that a consolidation would bring but don't want their jobs threatened to achieve these gains.

- It is very obvious that successful consolidation efforts usually obtain the early support of the Sheriff, Police Chiefs, and the Emergency Manager.
- Generally, Fire and EMS Chiefs as well as county administrators and elected officials seem to be more accommodating towards the development of a consolidation plan.

- NG911 may bring some shared resources and cost savings not available to current E911 technology.

Summary

All 117 PSAPs operating in Kansas at this time are receiving Phase II 911 calls which include the location of the caller using a cellular phone. Principally, due to landline and wireless 911 fees being distributed to the PSAPs as well as grant funding availability, all PSAPs in Kansas are employing current technology, including hardware, software, and support systems, to receive these calls. Some PSAPs may not be on the cutting edge of E911 technology, but they do so by choice to avoid problems inherent in new, unproven, systems, but the PSAP managers retain the ability to upgrade their systems when they feel comfortable to do so. Although some temporary malfunctions were found during the assessments and are known to periodically occur, all PSAP managers expressed confidence in their E911 systems. They reported positively on the reliability of the systems, the ease of use by a trained dispatcher, and the usefulness of the E911 systems available to the PSAP as they provided critical public safety resources to their communities. The PSAPs exist in a complicated environment that includes local, state, and federal laws and policies as well as dynamic local public safety concerns. These PSAPs continue to operate around the clock and every day of the year. Some issues were identified by this assessment and steps have been taken to address some of these concerns. Some will be addressed in the future and new issues will arise as Kansas moves towards Next Generation 911 and new future technologies.

The primary assessor, coming from a Kansas law enforcement background, was not surprised, but pleased, to find that all PSAPs, including large, medium and small PSAPs, in rural and urban Kansas were staffed by dedicated and professional individuals motivated to provide emergency services to their communities by the quickest and most efficient means possible. Kansans expect a timely response and help during a public safety emergency. After visiting all 105 counties in Kansas, the assessor is sincere in reporting that their expectations are being met in every county in Kansas.

Kansas Governor's Grants Program

Michael Webb, Primary Assessor and E911 Coordinator for the grant program

For copies of individual PSAP assessments, please contact Michael Webb at 785-291-3205 or by email at michael.webb@ks.gov.

KWEAB Board Members:

Diane Gage, Chair, Sedgwick County, PSAP over 15,000
Pat Thetford, Vice-Chair, Local Exchange Service Provider
Bob Boaldin, Morton County, Kansas Association of Counties Nominee
Don DeHaven, Harvey County, League of Kansas Municipalities Nominee
Kermit Crane, Shawnee County, Local Law Enforcement Representative
Mike Napolitano, Barton County, Local Fire/EMS
Jim Jarboe, Kearny County, PSAP Under 15,000
Dick Veach, Grant County, Wireless Carriers Industry
Captain Randy Moon, Kansas Highway Patrol

APPENDIX A

PSAP Wireless Phase II Assessment

Name of PSAP:					
Person Interviewed/phone:					
E911 Contact (if different)					
City, County, or Regional:		Population:		Square Miles:	
Type of PSAP			(sheriff, police, consolidated, other)		
Parent Authority (authorizes Purchases):					
Personnel and 911 Infrastructure					
# of Workstations				911 Calls Per Year	
Full Time Staff Authorized				% of Wireless Calls	
Full Time Staff Current				# of Administrative Calls	
Part Time Staff				911 Landline Trunks	
Staff Per Shift				911 Wireless Trunks	
				# of Wireless Service Providers	
Phase II					
Name of CPE					
Model					
WRLS includes twr sector?					
Phase II verified in writing:					
911 system interface	☐ Standalone		☐ CAD		
Future Interfaces Planned					
Operating Budget/sources					
CAD Service Provider					
Operating system/platform					
Local Exchange Carrier					
911 System provider					
Rebid Required for x,y?	☐ Yes		☐ No		
Automatic Rebid?	☐ Yes		☐ No		
Has performance been tested?	☐ Yes		☐ No		

Agencies Served by PSAP

Agency	Type of agency	Dispatched by:
		Radio
		Radio
		Radio
		Radio
		Radio
		Radio
		Radio
		Radio

NG 911			
VOIP Capable?		Network in Place?	
% of VOIP Calls?		Type of Network for NG911?	
Class of Service for VOIP?		Public Safety only/non public safety network?	
KCJIS Connection?		Mapping problems?	
NCIC Connection?		Backup Communications Center?	
Phase II to cars?		Number of 911 trunks available in backup center?	
Broadband/type			
Equipment/Software purchased with grant funds was documented?	☐ Yes	☐ No	
Notes and Comments of Assessor			
Date:			
Assessor:		Photo Taken of comm center?	☐
Procesed Date :		By:	

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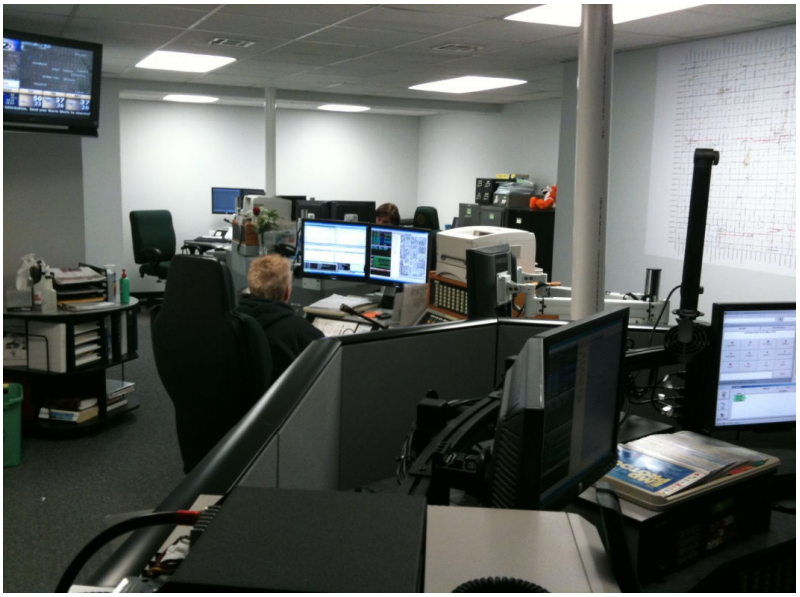
Appendix B – PSAP Photos

Chatauqua County – population 3,953

Sumner County – population 24,797



Miami County – population 30,900

Leavenworth County – population 73,628

Sedgwick County – population 476,026

Overland Park PD (Johnson County) - population 534,093